

CLAIMS

1. A medical device for removing objects from a body, comprising:
 - a basket comprising a plurality of wires, the wires comprising a proximal end and a distal end, and
 - a tip joint disposed at the distal end of the basket wires, wherein the tip joint is releasable from the distal ends of the wires when a predetermined force is applied to the tip joint.
2. The device of claim 1 further comprising:
 - a handle,
 - a sheath extending distally from the handle, the sheath having a lumen extending therethrough from a distal end of the sheath to a proximal end of the sheath, and
 - an elongate traction member axially disposed within the lumen of the sheath, the traction member distally extending from the handle and connected to the proximal end of the basket.
3. The device of claim 2 wherein the predetermined force is less than the force required to cause the traction member or at least one wire of the basket to fail.
4. The device of claim 1 wherein the tip joint is selected from a group consisting of an adhesive joint, a solder joint, a welded joint and an over-molding joint.
5. The device of claim 3 wherein the tip joint comprises a tubular tip member having a distal end, a proximal end, and a lumen extending therethrough, wherein the lumen of the tubular tip member is adapted to receive the distal end of the basket therein.
6. The device of claim 5 wherein the lumen of the tubular tip member is compressed around the basket wires thereby securing the distal end of the basket therein.

7. The device of claim 5 wherein at least one wire of the plurality of wires forming the basket is capable of sliding out of the tubular tip member when the predetermined force is applied to the tip joint.
8. The device of claim 5 wherein the tubular tip member deforms at a force that is less than the force required to cause the traction member or at least one wire of the plurality of wires forming the basket to fail.
9. The device of claim 8 wherein the tubular tip member is manufactured from a material which deforms at a force that is less than the force required to cause the traction member or at least one wire of the plurality of wires forming the basket to fail.
10. The device of claim 8 wherein the tubular tip member is manufactured from a material selected from a group consisting of silver-based alloy, silver, gold, platinum, stainless steel, and nickel titanium alloy.
11. The device of claim 8 wherein the tubular tip member is manufactured from sterling silver.
12. The device of claim 8 wherein the tubular tip member is manufactured from plastics.
13. The device of claim 8 wherein the force that is less than the force required to cause the traction member or at least one wire of the plurality of wires forming the basket to fail is in the range of about 20 pounds to 50 pounds.
14. The device of claim 2 wherein the traction member is selected from a group consisting of a cable, a coil, a shaft, a guidewire and a mandril wire.
15. The device of claim 2 wherein the traction member and the basket are formed from a single piece of material.

16. The device of claim 2 wherein the basket wires are joined to the traction member by a proximal connector.
17. The device of claim 16 wherein the proximal connector is selected from a group consisting of an adhesive joint, a solder joint, a welded joint and an over-molding joint.
18. The device of claim 16 wherein the proximal connector comprises a proximal tubular member having a distal end, a proximal end, and a lumen extending therethrough, wherein the lumen of the proximal tubular member is adapted to receive the proximal end of the basket therein.
19. The device of claim 18 wherein the lumen of the proximal tubular member is compressed around the basket wires thereby securing the proximal end of the basket therein.
20. The device of claim 19 wherein the proximal tubular member is manufactured from stainless steel.
21. The device of claim 2 wherein the basket is moveable between a withdrawn position in which the basket is collapsed within the lumen of the sheath, and an expanded position in which the basket extends from the distal end of the sheath and is disposed outside of the lumen for capturing the objects in the body.
22. The device of claim 21 wherein movement of the basket between the expanded position and the withdrawn position causes the objects in the body to fragment.
23. The device of claim 2 wherein the handle comprises at least one actuating mechanism therein.
24. The device of claim 2 wherein the traction member is slideably moveable relative to the sheath.

25. The device of claim 2 wherein the traction member is connected to the actuating mechanism, the actuating mechanism causing the traction member to shift the basket between the withdrawn position and the expanded position.
26. The device of claim 2, wherein the sheath is slideably moveable relative to the traction member.
27. The device of claim 2 wherein the sheath is connected to the actuating mechanism at the handle, the actuating mechanism causing the sheath to shift the basket between the withdrawn position and the expanded position.
28. The device of claim 1 wherein the plurality of wires comprise stainless steel.
29. The device of claim 1 wherein the plurality of wires comprise a nickel titanium alloy.
30. The device of claim 3 wherein the handle is detachable.
31. The device of claim 3, wherein the sheath is dimensioned to fit within a working channel of an endoscope.
32. A method for removing objects from a body tract, comprising the steps of:
 - providing a medical device comprising:
 - a handle,
 - a sheath extending distally from the handle, the sheath having a lumen extending therethrough from a distal end of the sheath to a proximal end of the sheath, the sheath is dimensioned to fit within a working channel of an endoscope,
 - a basket comprising a plurality of wires, the wires comprising a proximal end and a distal end, the basket moveable between a withdrawn position in which the basket is collapsed within the lumen of the sheath, and an expanded position in which the basket extends from the distal end of the

sheath and is disposed outside of the lumen for capturing the objects in the body, and
a tip joint disposed at the distal end of the basket wires, wherein the tip joint is releasable from the distal ends of the wires when a predetermined force is applied to the tip joint;
introducing the medical device with the basket in the withdrawn position into the working channel of the endoscope;
accessing the target body tract;
shifting the basket into the expanded position;
manipulating the basket to capture the objects therein; and
withdrawing the medical device from the body tract.

33. The method of claim 32, wherein the medical device further comprises an elongate traction member axially disposed within the lumen of the sheath.
34. The method of claim 32, wherein the predetermined force is less than the force required to cause the traction member or at least one wire of the basket to fail.
35. The method of claim 32, further comprising the step of applying traction to the traction member in the proximal direction thereby generating tension within the basket and causing the captured objects to fragment.
36. The method of claim 32, further comprising the step of applying traction to the sheath in the distal direction thereby generating tension within the basket and causing the captured objects to fragment.
37. The method of claim 32, further comprising the step of injecting contrast material for fluoroscopic visualization.